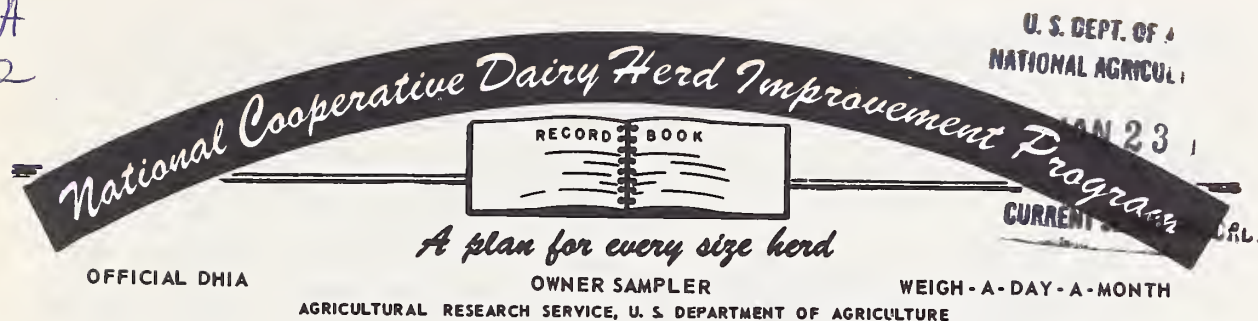


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ARS-44-206

(Vol. 44, No. 5)

Dairy-Herd-Improvement Letter

November 1968

IDENTIFICATION OF SIRES IN OFFICIAL DAIRY HERD IMPROVEMENT HERDS

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The percentage of lactations completed by dairy cows in the United States each year that is usable by USDA for estimating the genetic transmitting ability of bulls, is dependent on three factors: (1) The proportion of cows on Official DHI; (2) the proportion of lactation records that are reported to USDA (primarily a function of whether or not a cow's data are processed through one of the dairy record processing laboratories); and (3) the proportion of Official DHI lactation records that are reported to USDA with sire identification. The status of factors (1) and (2) is given annually in the DHI Letter containing the DHIA Participation Report. The status of factor (3) is described herein by States for the 12-month period, September 1, 1967, through August 31, 1968.

As shown in table 1, the proportion of Official DHI lactation records that is reported to USDA with sire identification, and therefore is useful in genetic evaluations, has actually decreased in the past 3 years. The cause of this decrease is not clear. It may have resulted from a true proportionate decrease in the reporting of sire identification. However, it may also have been due partially to the increase that has occurred during this period in the proportion of DHI lactation records that are reported to USDA.

Issued January 1969

TABLE 1.--Official DHI records without sire identification reported to USDA

Year ^{1/}	Lactations reported without sire identification	Lactations reported without sire identification, as percentage of all records reported	Cows for which data are on computer processing ^{2/}
	<u>Number</u>	<u>Percent</u>	<u>Percent</u>
1968 ^{3/}	813,945	41.0	85
1966	665,354	40.7	83
1965	563,938	37.8	75
1964	495,279	37.1	65

^{1/} Data for January 1, 1967, to August 31, 1967, were not available.

^{2/} Percentage of all Official DHI cows that were reported as on test and for which data are being processed through regional computing centers.

^{3/} September 1, 1967, through August 31, 1968. January 1-December 31 for other years.

The data in table 1 indicate that during the past 5 years over 3 million lactation records have been reported to USDA without sire identification. Unfortunately, these records were costly to handle and contributed little to sire and cow evaluations.

During the 12-month period ending August 31, 1968, approximately 2 million Official DHI lactation records were reported to USDA. Of these, 813,945, or 41 percent, did not have sire identification. Since records without sire identification are not useful in USDA-DHIA genetic appraisals, only 59 percent of the lactation records reported to USDA could be used in sire and cow evaluations.

About 10 percent of the lactation records that were reported with sire identification were found to contain incorrect or conflicting information by USDA editing procedures and, therefore, could not be used. These unusable records, plus

those without sire identification, resulted in a loss of approximately 920,000 lactation records in this 12-month period. These records could have been used for genetic appraisals and for obtaining other information of value to the dairy industry if accurate sire identification had been reported.

The data in table 2 show, by States, the number of records that were reported by USDA without sire identification in 1968 and the overall loss of valuable information that resulted from this missing identification. The number of records without sire identification is shown for each State in the third column as a percentage of all Official DHI records reported from that State. Also shown in table 2 is the percentage of dairy cows in each State that were actually useful in USDA-DHIA sire evaluations. Of the 50 States, Wyoming had the highest percentage of lactations reported with valid sire identification (83.6). Hawaii had the lowest percentage (3.3). Thus, the range among States in the proportion of Official DHI records that were sent to USDA without sire identification was from a low of 16.4 percent to a high of 96.7 percent. Five States each reported at least 50,000 lactations without sire identification. On a national basis, only 7.9 percent of all the milk cows in the country were eligible for use in sire evaluations.

The last column in table 2 shows the percentage of the cows in each State that would be useful in sire evaluations if all Official DHI lactation records were processed through regional computing centers. The figures at the bottom of the last two columns in table 2 indicate that if lactation records for all Official DHI cows were on computer processing, the proportion of cows eligible for sire evaluations would increase from the 7.9 percent to 9.3 percent. If all cows in the Official DHI program were on computer processing and if valid sire identification were reported, then the percentage of milk cows that would contribute to sire evaluations in the United States would double (15.8). These data clearly indicate that a tremendous amount of valuable information could be obtained for the dairy industry by increasing the proportion of Official DHI lactation records that are reported to USDA with proper sire identification. The percentage of cows that actually contributes information to sire evaluations in the various States ranges from a low of 0.9 (Hawaii) to a high of 23.1 (Connecticut). At present, Official DHI lactation records from all States except California are scheduled to be 100-percent computer processed within the next year.

TABLE 2.--Sire identification in Official DHI herds and its effect on sire evaluation

State	Official DHI lactations without sire identification		Official DHI records with valid sire identification	Cows on Official DHI recordkeeping ^{1/}	Official DHI cows on machine ^{2/} processing	Cows useful in sire evaluation ^{3/}	Potential cows useful in sire evaluation if all were on machine processing
	Reported in 1968	Percent of all records reported					
	Number	Percent	Percent	Percent	Percent	Percent	Percent
Ala-----	19,591	68.5	31.5	21.4	100.0	6.7	6.7
Alaska--	46	27.2	72.8	10.3	100.0	7.5	7.5
Ariz-----	4,051	32.3	67.7	28.0	56.6	10.8	19.0
Ark-----	1,515	40.1	59.9	4.1	100.0	2.5	2.5
Calif---	66,640	45.9	54.1	47.5	20.7	5.3	25.7
Colo-----	7,488	46.8	53.2	19.7	100.0	10.5	10.5
Conn-----	8,507	29.8	70.2	32.9	100.0	23.1	23.1
Del-----	1,965	37.8	62.2	26.5	100.0	16.5	16.5
Fla-----	8,319	44.2	55.8	11.6	100.0	6.5	6.5
Ga-----	20,173	60.9	39.1	21.6	100.0	8.4	8.4
Hawaii--	3,781	96.7	3.3	30.0	93.4	0.9	1.0
Idaho---	14,933	61.9	38.1	14.4	93.8	5.2	5.5
Ill-----	18,590	35.3	64.7	16.2	100.0	10.5	10.5
Ind-----	15,901	48.1	51.9	16.2	100.0	8.4	8.4
Iowa-----	28,065	47.0	53.0	9.8	100.0	5.2	5.2
Kans-----	13,951	38.1	61.9	17.3	100.0	10.7	10.7
Ky-----	10,431	48.4	51.6	6.2	100.0	3.2	3.2
La-----	2,696	38.4	61.6	4.4	93.1	2.5	2.7
Maine---	6,759	29.4	70.6	26.1	100.0	18.4	18.4
Md-----	15,599	40.8	59.2	24.0	100.0	14.2	14.2
Mass-----	6,352	24.8	75.2	27.1	100.0	20.4	20.4
Mich-----	38,564	41.9	58.1	15.8	100.0	9.2	9.2
Minn-----	58,234	49.3	50.7	10.9	98.2	5.4	5.5
Miss-----	11,156	61.1	38.9	9.9	100.0	3.9	3.9
Mo-----	12,403	50.6	49.4	6.6	100.0	3.3	3.3
Mont-----	751	17.0	83.0	8.8	88.8	6.5	7.3
Nebr-----	9,593	57.2	42.8	8.4	99.6	3.6	3.6
Nev-----	1,633	48.7	51.3	47.3	64.2	15.6	24.3
N. H-----	4,278	27.6	72.4	31.0	100.0	22.4	22.4
N. J-----	10,635	34.1	65.9	27.9	100.0	18.4	18.4
N. Mex---	3,196	27.1	72.9	18.2	100.0	13.3	13.3
N. Y-----	74,896	32.5	67.5	17.4	100.0	11.7	11.7
N. C-----	21,985	46.6	53.4	25.0	100.0	13.4	13.4
N. Dak---	2,336	46.6	53.4	3.4	92.7	1.7	1.8
Ohio-----	26,081	38.6	61.4	18.3	100.0	11.2	11.2
Okla-----	8,658	56.3	43.7	10.7	100.0	4.7	4.7
Oreg-----	12,056	50.7	49.3	20.7	87.6	8.9	10.2
Pa-----	50,280	22.7	77.3	24.0	100.0	18.6	18.6
R. I-----	733	28.5	71.5	25.3	100.0	18.1	18.1
S. C-----	12,377	52.4	47.6	35.2	100.0	16.8	16.8
S. Dak---	2,361	39.6	60.4	2.7	100.0	1.6	1.6
Tenn-----	16,120	55.8	44.2	8.9	100.0	3.9	3.9
Tex-----	16,983	58.6	41.4	8.5	99.4	3.5	3.5
Utah-----	19,004	51.5	48.5	27.8	100.0	13.5	13.5
Vt-----	19,356	41.2	58.8	18.1	100.0	10.6	10.6
Va-----	26,678	45.1	54.9	26.1	100.0	14.3	14.3
Wash-----	20,098	48.9	51.1	19.1	100.0	9.8	9.8
W. Va---	4,232	40.3	59.7	11.5	100.0	6.9	6.9
Wis-----	53,838	39.0	61.0	6.8	100.0	4.1	4.1
Wyo-----	77	16.4	83.6	7.7	100.0	6.4	6.4
U.S-----	813,945	41.0	59.0	15.8	85.4	7.9	9.3

^{1/} See table 2, March 1968 Dairy-Herd-Improvement Letter for source of data.

^{2/} See table 5, March 1968 Dairy-Herd-Improvement Letter for source of data.

^{3/} To be useful in sire evaluation, cows must be (1) on Official DHI test, (2) on computer processing, and (3) have valid sire identification.

Variation among the 50 States in percentage of Official DHI cows with sire identification is summarized in table 3. This table indicates that only two States (Montana and Wyoming) reported sire identification on over 80 percent of their Official DHI cows. Only 10 States reported sire identification on over 70 percent of their cows. However, 37 States reported sire identification on over half of their cows correctly.

The 12 States that reported over two-thirds of their Official DHI cows properly identified by sire are listed in table 4. The majority of these States are either in the Rocky Mountain area or in the Northeast.

The variation in percentage of milk cows used in USDA-DHIA sire evaluations is summarized in table 5. This table shows that in only two States (Connecticut and New Hampshire) are over 21 percent of the cows being used. In 10 States 15 percent or more of the cows are being used, but at the other extreme less than 5 percent of the cows are being used.

The 10 States in which 15 percent or more of the milk cows are being used in USDA-DHIA sire summaries are listed in table 6. The high proportion of cows used from these States reflects a combination of a high percentage of cows on test, a high percentage of cows correctly identified by sire, and most if not all of the cows on Official DHI testing being processed through regional computing centers and reported to USDA. The majority of these 10 States are in the Northeast.

The continuing failure to report sire identification on over 40 percent of the Official DHI cows indicates that a great deal of improvement is necessary. Perhaps new directions such as systems that capture sire identification of female calves when they are born in Official DHI herds would help to increase the number of cows that are properly identified. At present several of the regional computing centers are working on the development of such systems.

The two groups that are most involved with and affected by lack of identification of sires are the dairy breed registry associations and the artificial insemination (AI) organizations. The proportion of correctly identified cows could be increased materially if there were some method to positively identify all daughters of bulls used in AI. It would seem to be in the best interest of the AI organizations to contribute the greatest amount of time and effort to increase the pro-

portion of correctly identified cows on Official DHI test in their areas. It would also seem to be in the best interest of the dairy breed registry associations to obtain as much production information as possible on the cows in their breed. Such information would materially increase the value of the services that the breed associations could provide to the industry.

TABLE 3.--Variation in percentage of Official DHI cows with sire identification among States

Cows with sire identification		Cows with sire identification	
Percent	Number	Percent	Number
90 or more -----	0	40-49 -----	8
80-89 -----	2	30-39 -----	4
70-79 -----	8	20-29 -----	0
60-69 -----	10	10-19 -----	0
50-59 -----	17	1-9 -----	1
U.S. average -----		59	

TABLE 4.--States with over two-thirds of their Official DHI cows identified by sire

State	Cows identified by sire	State	Cows identified by sire
	Percent		Percent
Wyoming -----	83.6	New Hampshire -----	72.4
Montana -----	83.0	Rhode Island -----	71.5
Pennsylvania -----	77.3	Maine -----	70.6
Massachusetts -----	75.2	Connecticut -----	70.2
New Mexico -----	72.9	Arizona -----	67.7
Alaska -----	72.8	New York -----	67.5
U.S. average -----		59.0	

TABLE 5.--Variation in percentage of milk cows used in
USDA-DHIA sire evaluations

Cows used in sire evalua- tions		Cows used in sire evalua- tions	
States		States	
<u>Percent</u>	<u>Number</u>	<u>Percent</u>	<u>Number</u>
21 or more -----	2	7 -----	1
18-20 -----	5	6 -----	5
15-17 -----	3	5 -----	4
12-14 -----	5	4 -----	2
10-11 -----	7	3 -----	6
9 -----	2	2 -----	2
8 -----	3	1 -----	3

TABLE 6.--States in which 15 percent or more of their milk
cows are used in USDA-DHIA sire summaries

Sires identified		Sires identified	
State		State	
<u>Percent</u>		<u>Percent</u>	
Connecticut -----	23.1	Maine -----	18.4
New Hampshire -----	22.4	Rhode Island -----	18.1
Massachusetts-----	20.4	South Carolina ----	16.8
Pennsylvania -----	18.6	Delaware -----	16.5
New Jersey -----	18.4	Nevada -----	15.6
U.S. average -----			7.9

ERRATA

Recently the National Association of Animal Breeders found that 71,696 artificial inseminations to beef cows in 1965, 1966, and 1967 were not reported. These were inseminations made by the Armour and Company Beef Cattle Improvement Research, 1/ between November 1, 1965, and November 1, 1967. The corrected total AI services of beef sires bred to beef cows in the United States in 1966 and 1967 are shown in the following table.

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TABLE 7.--Corrected data for beef cattle artificially inseminated in 1966 and 1967

Year	Previously reported services	New data <u>2/</u>	Corrected U.S. total	Corrected percentage of AI beef cows
	<u>Number</u>	<u>Number</u>	<u>Number</u>	<u>Percent</u>
1966-----	647,143 <u>3/</u>	48,038	695,181	2.0
1967-----	649,161 <u>4/</u>	23,658	672,819	1.9

1/ P. O. Box 9222, Chicago, Ill. 60690.

2/ Data received from H. A. Herman, Executive Secretary, National Association of Animal Breeders, P. O. Box 1033, Columbia, Mo. 65201, in letter of July 8, 1968.

3/ See April 1967 Dairy-Herd-Improvement Letter, ARS-44-191. Tables 1, 3, 4, and 5 are affected by the new data.

4/ See May 1968 Dairy-Herd-Improvement Letter, ARS-44-204. Tables 1, 3, 4, and 5 are affected by the new data.